

NAME \_\_\_\_\_

PERIOD \_\_\_\_\_ DATE \_\_\_\_\_

### GRAPHING FUNCTIONS WS #3

Given  $y = f(x)$ , what are the effects of each of the following?

- 1)  $y = -f(x)$  \_\_\_\_\_
- 2)  $y = a f(x)$  for  $-1 < a < 1$  \_\_\_\_\_
- 3)  $y = a f(x)$  for  $a > 1$  or  $a < -1$  \_\_\_\_\_
- 4)  $y = f(x) + c$  \_\_\_\_\_
- 5)  $y = f(x) - c$  \_\_\_\_\_
- 6)  $y = f(x + c)$  \_\_\_\_\_
- 7)  $y = f(x - c)$  \_\_\_\_\_

Based on your conclusions about the effect of each of the above, explain what will happen to the basic graph when graphing the following functions.

1) Basic function:  $y = x^2$

a)  $y = (x - 2)^2 + 5$  \_\_\_\_\_

b)  $y = (x + 3)^2 - 8$  \_\_\_\_\_

c)  $y = \frac{2}{7}x^2 + 1$  \_\_\_\_\_

d)  $y = -x^2 - 4$  \_\_\_\_\_

e)  $y = -x^2 + 8$  \_\_\_\_\_

2) Basic function:  $y = \sqrt{x}$

a)  $y = \sqrt{x+3} + 9$  \_\_\_\_\_

b)  $y = \sqrt{x-7} - 2$  \_\_\_\_\_

c)  $y = 7\sqrt{x+2}$  \_\_\_\_\_

d)  $y = -\sqrt{x} - 11$  \_\_\_\_\_

e)  $y = -\sqrt{x+3}$  \_\_\_\_\_

Using the basic function  $y = \frac{1}{x}$ , write the equation represented by each of the following.

- 1) moves up 6 and left 9 \_\_\_\_\_
- 2) moves down 1 and right 6 \_\_\_\_\_
- 3) reflected over the x-axis and moves down 5 \_\_\_\_\_
- 4) moves closer to the y-axis and moves right 7 \_\_\_\_\_
- 5) reflected over the x-axis, moves left 2 and up 12 \_\_\_\_\_

Using the basic function  $y = [x]$ , write the equation represented by each of the following.

- 1) moves down 2 and right 7 \_\_\_\_\_
- 2) moves up 4 and left 3 \_\_\_\_\_
- 3) reflected over the x-axis and moves up 4 \_\_\_\_\_
- 4) moves farther from the y-axis and moves left 6 \_\_\_\_\_
- 5) reflected over the x-axis, moves down 7 and right 9 \_\_\_\_\_